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1. PER REQUEST, THE FOLLOWING INFORMATION HAS BEEN COMPILED FROM THE ASCENDING FRAMES OF MISSION 4027 WITH SOLAR ELEVATIONS OF 10 DEGREES OR LESS.

A. THE MINIMUM SOLAR ELEVATION THAT PRODUCED USABLE (MARGINAL) IMAGERY WITH SNOW WAS PLUS 0.2 DEGREES (EXAMPLE: PASS 57M, FRAMES 1 AND 2).

B. THE MINIMUM SOLAR ELEVATION THAT PRODUCED USABLE IMAGERY WITHOUT SNOW WAS PLUS 2.0 DEGREES (EXAMPLE: PASS 63M, FRAMES 5 AND 6).

C. THE MINIMUM SOLAR ELEVATION THAT PRODUCED GOOD QUALITY PHOTOGRAPHY FOR PHOTO INTERPRETATION WAS PLUS 5.0 DEGREES (EXAMPLE: PASS 31M, FRAME 7).

2. THE LOW SOLAR ELEVATIONS REQUIRE CLEAR WEATHER WITH NO CLOUDS BETWEEN THE TARGET AND THE SUN TO PRODUCE USABLE IMAGERY.

3. BY COMPARING THE ALTITUDES OF PAST MISSIONS WITH 4027 OVER THE SAME LATITUDES COVERED BY THE ASCENDING PHOTOGRAPHY OF MISSION 4027, THE AVERAGE ALTITUDE OF 4027 IS 20 PERCENT HIGHER. THIS WOULD MEAN APPROXIMATELY A 20 PERCENT LOSS IN SCALE ON USABLE PHOTOGRAPHY.

4. THE SCALE DIFFERENCE CAUSED BY THE HIGHER ALTITUDE HAD SOME

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EFFECT ON THE PHOTO INTERPRETATION OF GOOD, CLEAR PHOTOGRAPHY. THIS LOSS IN INTERPRETABILITY, HOWEVER, WAS OCCASIONALLY COMPENSATED FOR BY THE CHANGE IN LOOK ANGLES WHICH GAVE THE PI'S A DIFFERENT VIEW OF SOME TARGETS. THE MAIN DEGRADATION TO ASCENDING PHOTOGRAPHY WHICH OCCURS LATER IN THE DAY APPEARS TO BE A GROUND HAZE CAUSING REDUCTION IN CONTRAST OF THE IMAGES.

5. THE SMEAR ON THE ASCENDING FRAMES OF MISSION 4027 WAS COMPUTED TO FALL IN THE RANGE OF 0.2 TO 15 MICRONS. ALL ASCENDING FRAMES WERE VISUALLY VIEWED TO DETERMINE THE DEGREE OF IMAGE DEGRADATION CAUSED BY THE SMEAR. MINOR SMEAR WAS DETECTED ON ONLY ELEVEN FRAMES, AND FIVE OF THESE WERE REPORTED TO HAVE HAD INCORRECT FILM SPEED NOT ASSOCIATED WITH THE CRAB PROBLEM. SMEARING OF THE REMAINING SIX FRAMES CLOUD NOT BE DIRECTLY ATTRIBUTED TO NON-COMPENSATED CRAB ON THE ASCENDING PASSES (EXAMPLE: SMEAR WITH INCORRECT FILM SPEED PASS 62, FRAMES 5 AND 6; EXAMPLE: SMEAR PASS 63, FRAMES 5 AND 6). THEREFORE, IT IS APPARENT THAT THE SMEARING DUE TO UNCOMPENSATED CRAB DID NOT SERIOUSLY DEGRADE THE PI SUITABILITY OF THE ASCENDING PASSES.

6. THE FOLLOWING IS AN EVALUATION AND BREAKDOWN OF THE 114 ASCENDING FRAMES WITH 10 DEGREES OR LESS SOLAR ELEVATION.

A. THERE ARE 35 (30 PERCENT) FRAMES WITH VARYING DEGREES OF GROUND IMAGES. THE SOLAR ELEVATIONS RANGE FROM MINUS 0.2 DEGREES TO PLUS 10.0 DEGREES OF THE 35 FRAMES, 16 CONTAIN GOOD IMAGES AND HAVE SOLAR ELEVATIONS OF PLUS 5.0 DEGREES OR ABOVE. THE OTHER 19

FRAMES CONTAIN IMAGES THAT RANGE FROM FAIR TO POOR DEPENDING ON SOLAR ELEVATIONS, CLOUDS, OR CLOUD SHADOWS.

B. THERE ARE 22 (19 PERCENT) FRAMES WITH NO GROUND IMAGES OR CLOUDS VISIBLE. THE SOLAR ELEVATIONS RANGE FROM MINUS 6.0 DEGREES TO MINUS 0.5 DEGREES.

C. THERE ARE 26 (23 PERCENT) FRAMES WITH SOME CLOUDS BUT NO GROUND IMAGES ARE VISIBLE. THE SOLAR ELEVATIONS RANGE FROM MINUS 8.0 DEGREES TO PLUS 6.0 DEGREES.

D. THERE ARE 31 (28 PERCENT) FRAMES THAT ARE DETERMINED TO BE 100 PERCENT CLOUDS. THE SOLAR ELEVATIONS RANGE FROM PLUS 1.1 DEGREES TO PLUS 9.0 DEGREES.

7. BASED ON THE RESULTS OF MISSION 4027 THE CONSENSUS OF NPIC IS THAT FURTHER USE OF ASCENDING PASSES WOULD NOT SERIOUSLY DEGRADE MISSION INFORMATION CONTENT PROVIDING THE SOLAR ELEVATION WAS ABOVE 5.0 DEGREES.

T O P S E C R E T

/END OF MESSAGE/